

Step 5: Set the Schedule (As shown in Figure 5-11)

- Set the scan interval, i.e. how frequently user wants to scan the data from the nodes. The scan interval must be greater than 3 minutes. Scan interval also depends on the number of nodes connected and their types. Set the scan interval and press “Save and Scan ON”.

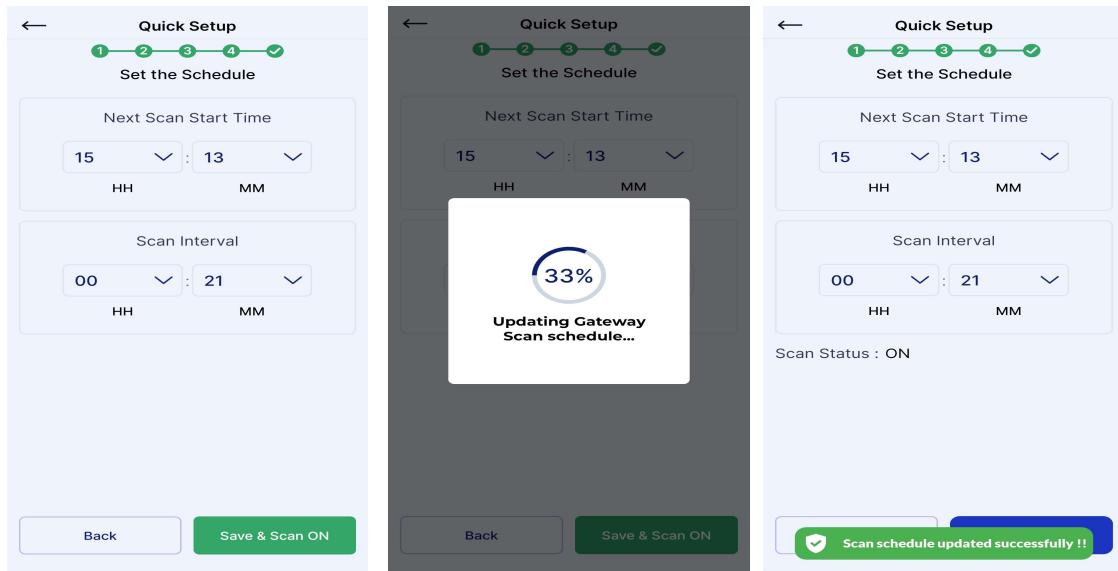


Figure 5-11

- The Quick setup is over now, Click on Back to Setup Home.

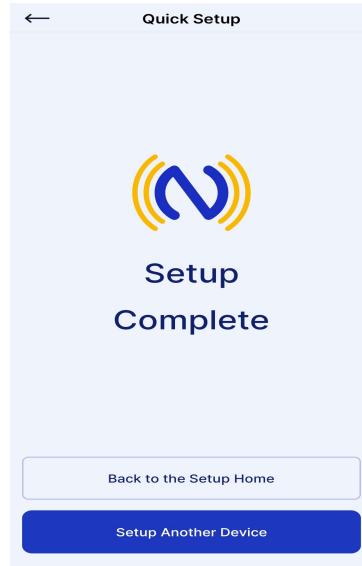


Figure 5-12

5.5 Edit configuration

- In the home screen, click on “Edit Configuration”. Here, the user can edit the details filled in the Quick Setup process.

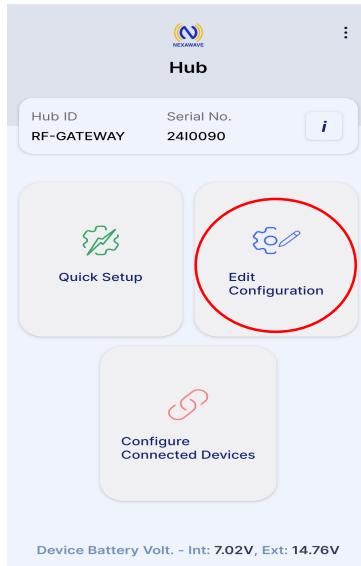


Figure 5-13

- On clicking “Edit configuration,” the user would typically be taken to a new window that provides a summary of the key configuration details of the hub, including its identification, installation date, communication parameters, and location information. It allows the user to review these settings and potentially make changes using the "Edit" button.



Figure 5-14

- By scrolling left on same window there is system setup window. This window allows the user to customize the device's data logging behaviour and configure its cellular communication settings.



Figure 5-15

- **Logging:** This section deals with the device's logging functions.

Next Scan Start Time: Sets the time when the next data collection scan will begin.

Scan Interval: Specifies the time interval between data scans.

Scan Status: A toggle switch to enable or disable the scanning process.

- **Cellular Settings:** This section configures the device's cellular connectivity.

FTP for two-way communication: Sets the FTP server address and port for two-way data exchange.

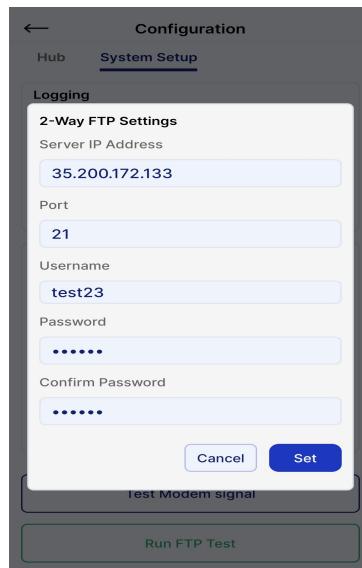


Figure 5-15

FTP to upload data: Sets the FTP server address and port for uploading data only.

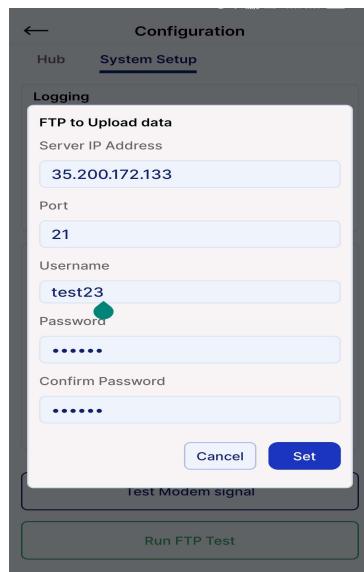


Figure 5-15

APN: Specifies the Access Point Name used for cellular data connection.

Update: A button to save any changes made to the cellular settings.

- **Buttons:**

Test Modem Signal: This button likely initiates a test to check the strength and quality of the device's cellular signal.

Run FTP Test: This button performs a test connection to the configured FTP server to verify communication.

5.6 Configure connected devices

With this feature, the user can perform hub-to-node communication and configure any other node in the same network from the Hub. It allows users to modify specific node parameters. In a network where all nodes are connected to the hub, users can conveniently configure these parameters from hub in the network by connecting it through an Android phone.

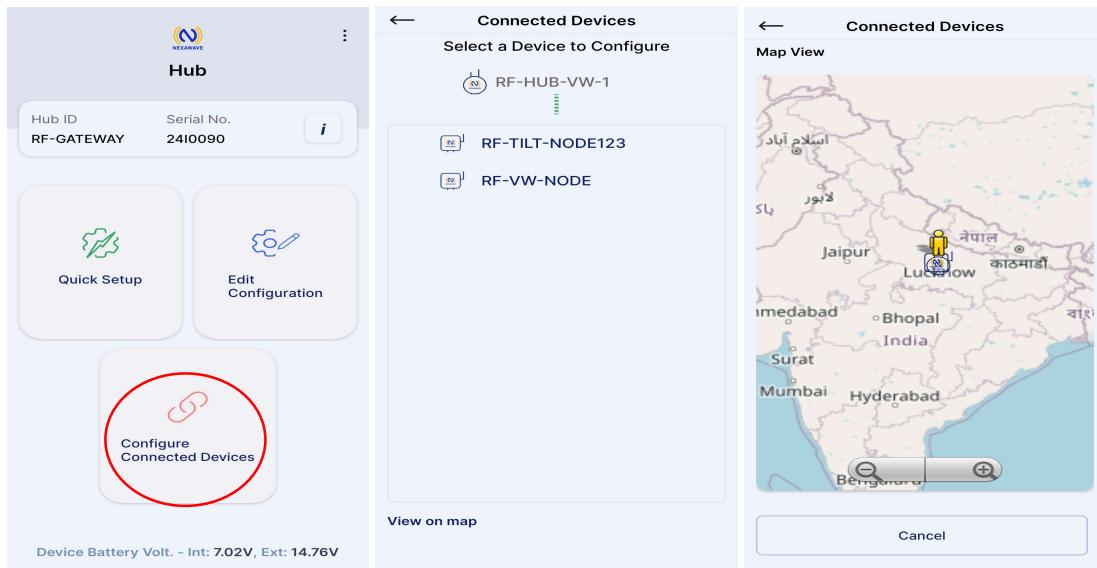


Figure 5-16

6 DATA FORMAT

6.1 Upload data

Data uploaded to the FTP server is in the below format.

The initial lines provide the header information for both the Gateway and Nodes, followed by the visible data. visible data.

Gatway MAC Add	4G RSSI(dBm)
000DB539066F397B,-59,"GATEWAYID","GATEWAYSN","DATE/TIME","BATTV(INT)","BATTV(EXT)"	
Node MAC Add	Node RSSI(dBm)
000DB532198E3168,-77,"GATEWAY ID","GATEWAY SN","DATE/TIME","BATTV(INT)","BATTV(EXT)"	
000DB532198E314C,-20,"NODE ID","DATE/TIME","BATTV(INT)","BATTV(EXT)","AXIS-X(deg)","AXIS-Y(deg)","AXIS-Z(deg)","DIST(mtr)","TEMP(deg C)"	
000DB532198E3168,-77,"24B0043","24B0043","2024/05/21 15:04:52",7.33,14.42	
000DB532198E314C,-26,"24D0060C","2024/05/21 15:04:01",7.20,0.00,1.2865,1.0234,-84.8297,0.4981,27.26	

6.2 SD card data

SD card data is in the same format as upload data.

000DB532198E3168,-77,"GATEWAY ID","GATEWAY SN","DATE/TIME","BATTV(INT)","BATTV(EXT)"
000DB532198E314C,-20,"NODE ID","DATE/TIME","BATTV(INT)","BATTV(EXT)","AXIS-X(deg)","AXIS-Y(deg)","AXIS-Z(deg)","DIST(mtr)","TEMP(deg C)"
000DB532198E3168,-77,"24B0043","24B0043","2024/05/21 15:04:52",7.33,14.42
000DB532198E314C,-26,"24D0060C","2024/05/21 15:04:01",7.20,0.00,1.2865,1.0234,-84.8297,0.4981,27.26

7 INSTALLATION PROCEDURE

Sites being different from each other must be properly surveyed to determine the best place for mounting the gateway. Generally, the gateway should be in line of sight of all the nodes and if this is not possible in line of sight with most of the nodes. In a hilly region, the best place to mount a gateway may be a portable cabin from where all the nodes are visible.

A good place to mount the gateway maybe on a mast on the tallest building in the neighbourhood. To achieve better coverage/transmission of data, it is recommended that the gateway (antenna) be mounted at the site as high as practicably possible.

7.1 Wall mounting

Gateway box is provided with mounting holes. To install the Gateway on pole, fix the gateway mounting plate provided with the supply to the gateway box. Fix the pole mounting bracket to the pole. Fix both the antenna at the top of the pole using antenna mounting bracket as shown in the figure below.

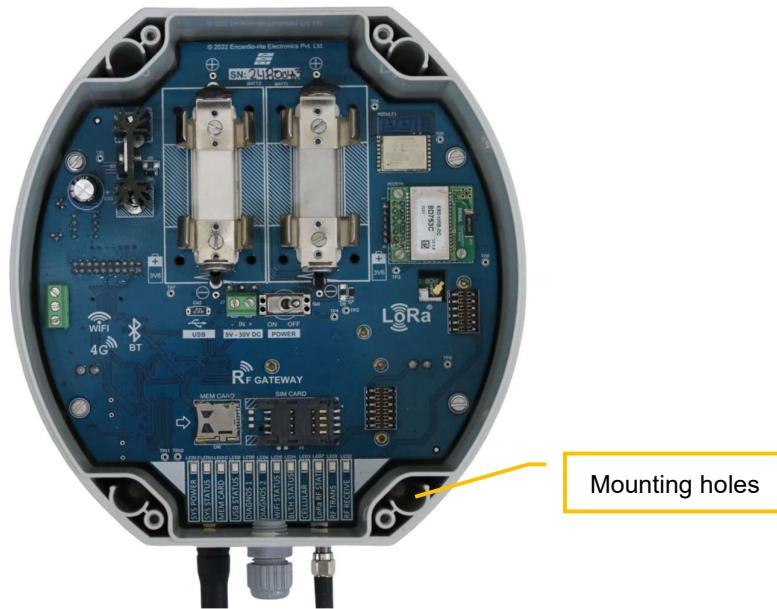


Figure 7-1 Gateway mounting holes details

7.2 Mast mounting

Mounting the gateway on a tall mast is a good solution to achieve better height. Extra precaution must however be taken for protection of the equipment.

Type of mast to be used for any application depends on the site conditions. Mast maybe a small pole mounted to the roof of any structure or a tall pole in an open field structured on a strong foundation. If required, the mast maybe supported with guy wires.

Once a stable mast is ready the gateway can be fixed on it using suitable clamps and the mounting plate. A typical installation photograph is shown in figure -2 for reference. A protection box may be provided, depending on site requirement.

NOTE: Mast, mounting accessories, protection cover and necessary civil work is in the scope of the client.

Installation may have to be improvised or tailor made depending upon site conditions.

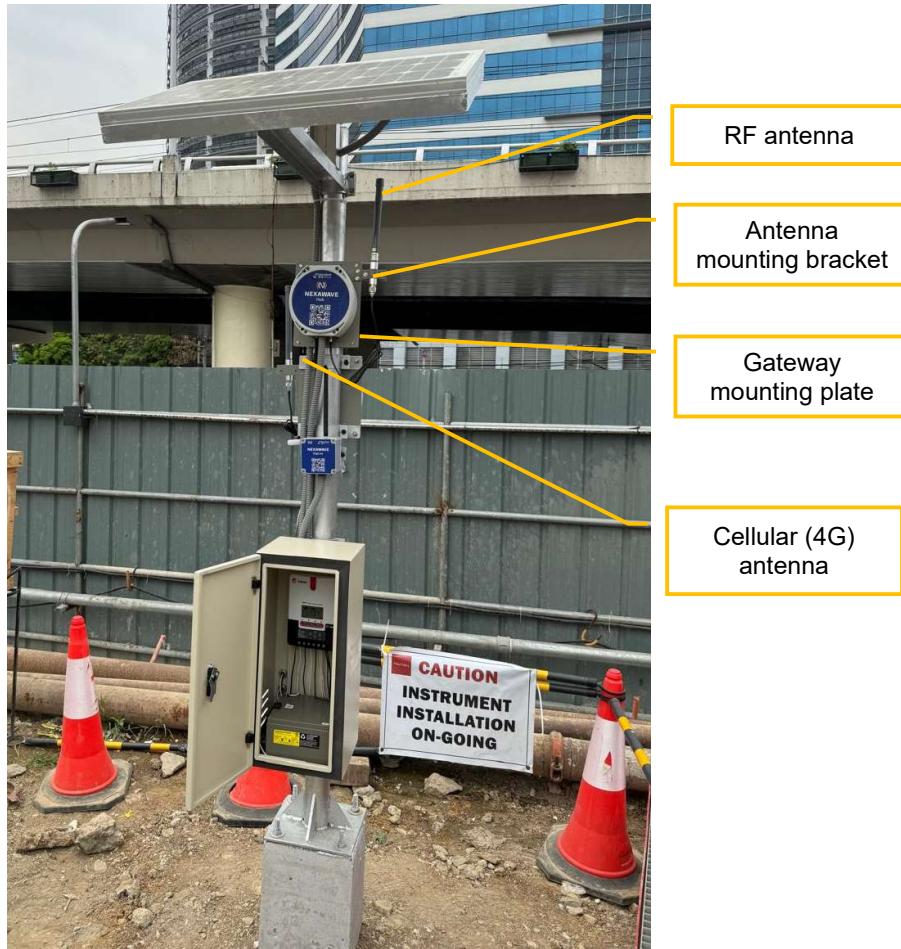


Figure 7-2 Gateway mounted on mast

NOTE: Depending on the type of antenna used, cellular and RF antenna can be either installed over the mounting bracket fixed on pole, or can be directly mounted on the respective connectors provided at the bottom of gateway.

The figure 7-1, the cellular antenna is fixed at the bottom of gateway, while the RF antenna is mounting on the mounting bracket fixed on pole.

8 TROUBLESHOOTING

If the gateway is not connecting to the internet automatically, please follow these troubleshooting steps:

- Verify that all deployment steps have been executed accurately, giving particular focus to the cabling. It is crucial to confirm that the gateway has been appropriately connected before powering it on. Incorrect cabling can result in the gateway booting up without network connectivity or a SIM card.
- Attempt to reboot the gateway using the ON/OFF switch. After the reboot, check if the gateway successfully establishes an internet connection.
- Verify that the 4G antenna is securely and properly connected. Ensure that the antenna connecting cable is undamaged and correctly attached.
- If the above steps do not resolve the issue, please refer to the user manual for further guidance or contact ER for additional assistance.

Unable to communicate with Nodes

- Check the antenna for loose connection.
- Antenna to RF modem connecting cable may be damage.
- Antenna itself may be damaged try with another antenna.

9 SAFETY AND WARNING

9.1 Operation Safety

- Before taking any action, please read the user's manual carefully.,
- Ensure that all the procedures and installations are correctly carried out.
- The case and mountings should be grounded, where practicable.
- This product has been designed to meet a certain water-proof level. However, it becomes vulnerable to water ingress when the lid screws are not tightened properly, or if the cable gland has not been sealed properly.
- This product must not be disassembled under any circumstances. If done, it will void the warranty and may leave the product in a dangerous state.

9.2 Battery caution & warning

- To install the battery into a holder, please follow the "+" (positive) and "-" (negative) signs carefully. Wrong orientation of a battery could potential cause unit damage.
- If battery is incorrectly replaced, there may be danger of explosion.
- Use only with the type recommended by the manufacturer. Observe any warnings specified by the battery manufacturer.
- The battery has a relatively high capacity, so please take special care during storage and usage.
- When disposing of the batteries please contact your local authorities or dealer and ask for the correct method of disposal.
- When disconnecting the battery, please take special care not to apply excessive force, otherwise the battery holder and the nearby circuitry can get damaged.

If the above safety precaution and warnings are not followed, the manufacturer cannot be held responsible for any damage and injury caused to the users.

Warning Radiation Exposure

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 25cm between the radiator& your body.

Recommendation of Batteries for Dataloggers

10 RECOMMENDATION OF BATTERIES FOR DATALOGGERS

We recommend to use any of the following batteries in all Encardio-rite products (Dataloggers, Wireless Nodes and Gateway). These batteries can be sourced locally.

SN	Manufacturer	Mfr Part No.	Battery type	Datasheet	Photo	Example Links to buy
1	ACT	ER34615M	LI-SOCL2 (Power Type)	https://actsales04.en.ec21.com/ACT_ER34615M_3.6volts_Lithium_Battery--8201912_8271376.html		actsales
2	SAFT	LSH 20	LI-SOCL2 (Power Type)	https://www.saft.com/products-solutions/products/ls-lsh-lsp?text=&tech=84&market=&brand=764&sort=newest&submit=Search		Digikey Atbatt.com Potenza Batteryexperts.com

Recommendation of Batteries for Dataloggers

3	SAFT	LSH 20 HTS	LI-SOCL2 (Power Type)	https://www.saft.com/products-solutions/products/ls-lsh-lsp?text=&tech=84&market=&brand=764&sort=newest&submit=Search	 A cylindrical battery with a white and green label. The label features the SAFT logo at the top, followed by 'LSH 20 HTS' in large letters, '3.6V' in the middle, and 'Li-SOCl2' at the bottom.	Teckai.com indiamart patareid Aliexpress.com globalbat
4	Ultra Life	ER34615M	LI-SOCL2 (Power Type)	https://www.ultralifeindia.com/wp-content/uploads/2020/01/TDS_ER34615M.pdf	 A cylindrical battery with a red and silver label. The label features the 'ULTRA LIFE' logo and 'Thionyl Chloride Lithium Battery' text.	mouser
5	FANSO	ER34615M	LI-SOCL2 (Power Type)	https://www.texim-europe.com/product/battery-and-power-supplies/batteries/primary-batteries/lithium-li-socl2/detail/er34615m-fso	 A cylindrical battery with an orange and black label. The label features the 'FANSO' logo, 'ER34615M 3.6V' text, and 'LITHIUM BATTERY'.	texim-europe tme.com ecocell.com batterydirect.com
6	RAMWAY	ER34615M	LI-SOCL2 (Power Type)	http://en.ramwaybat.com/product/46/	 A cylindrical battery with a red and silver label. The label features the 'RAMWAY' logo.	Alibaba.com Lazada zgqjnyw.mobi

Recommendation of Batteries for Dataloggers

7	Bex Batteries	ER34615M	LI-SOCL2 (Power Type)	batteryExperts		batteryExperts
8	PKCELL	ER34615M	LI-SOCL2 (Power Type)	Pkcellpower.com		Pkcellpower.com electronicworld Amazon Alibaba
9	HCB	ER34615M	LI-SOCL2 (Power Type)	https://www.enhcb.com/products/li-socl2-lithium-thionyl-chloride-cylindrical-battery/		Enhcb.com
10	FORTE	ER34615M	LI-SOCL2 (Power Type)	Fortebattery		Fortebattery zinchu ozon

11	EVE	ER34615M	LI-SOCL2 (Power Type)	https://microchip.ua/battery/er34615m.pdf	 A cylindrical EVE ER34615M lithium battery. The label is red and white, with 'EVE' in large letters, 'ER34615M', and '3.6V'.	Jm.pl repairnspares
12	TekCell	ER34615M	LI-SOCL2 (Power Type)	https://www.tme.eu/Document/69a4b065e0660fedf2cdae1c1c0fb8d4/BAT-ER34615M.pdf	 A cylindrical TekCell ER34615M lithium battery. The label is green and black, with 'Tekcell' in large letters, 'ER34615M', '3.6V', and 'Lithium Primary Battery'.	tme